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# Academic entrepreneurs: The role of star scientists in commercialization of radical science

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## INTERACTIVE PAPER

### ACADEMIC ENTREPRENEURS: THE ROLE OF STAR SCIENTISTS IN COMMERCIALIZATION OF RADICAL SCIENCE

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#### Principal Topic

We examine the effects of individual, team, and institutional capabilities on the governance of technology contracts. Star scientific teams may work on higher quality projects which may be of high or low risk, depending on the maturity of the technology. Arguments that assumed that both capabilities and risk are codetermined, and seldom diverge in their effects on incentive preferences, may be tenuous in these cases. We test our predictions using a two-stage model in a sample of 1,474 inventions that were licensed through performance or upfront contracts. We find that when individuals and teams have strong capabilities, they prefer performance contracts, even if the underlying technology was more mature (or of lower risk). These results explain conditions when inventors facing the same technology risk elect to organize their transactions differently. The implications for theories of risk, capabilities, and innovation are discussed.

#### Method

We contribute to the literature on capabilities by adopting a multi-level approach that includes the individual scientist, the team of inventors, and the organizational-level of licensor firm. We argue that individuals and teams with high capability gravitate to performance-based contracts, whereas when the licensor organization has capability, it opts for upfront payment contracts. This is driven by the selection of projects with higher pay-off potential by individual scientists and teams with capabilities, whereas when licensor organization derives its capability from having dealt with similar projects, it is able to reduce the information asymmetry between the inventors and the licensee firms by serving as information producing intermediary resulting in upfront payment contracts.

#### Results and Implications

We employ a two-stage model to control for unobservable factors that influence both the licensing of a particular invention and the type of licensing contract being written. In the first stage, we predict the probability that an invention is licensed, and in the second stage, the probability it is licensed as a performance-based contract. The results of this estimation and robustness checks are consistent with the predictions of the capability based view of licensing.

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